

AMENDMENT UNDER 37 C.F.R. § 1.111  
Application Serial No. 10/791,126  
Attorney Docket No. Q80242

**REMARKS**

Upon entry of the present Amendment, claims 1-6 and 11-17 are all the claims pending in the application. Claims 1, 12, and 13 are amended, and new claims 14-17 are added. No new matter is presented.

Initially, Applicant thanks the Examiner for the courtesies extended during the telephonic interview of July 12, 2006, in which the Examiner's interpretation of Casiraghi and Petisce were discussed with respect to the rejections of claims 1 and 12, respectively. As agreement with respect to the outstanding rejections was not reached, Applicant submits the present amendment with arguments for the patentability of the pending claims.

**Claim Rejections - 35 U.S.C. § 102**

Claims 1, 3 and 6 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Casiraghi et al. (U.S. Patent No. 6,278,825, hereinafter "Casiraghi"). Applicant respectfully traverses and submits that Casiraghi fails to teach or suggest all the features of these claims, as evidenced by the following.

Claim 1 defines an optical fiber cable comprising, *inter alia*, at least one central strength member, at least one optical fiber, *a metallic conductor means surrounding said fiber for transporting electrical energy through the cable* and, surrounding said conductor means, an insulative layer of an insulative composition comprising *mainly a mixture of polymers comprising at least one high-density first polymer and one low-density second polymer* which

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*has a lower viscosity than said first polymer*, the insulative layer providing improved resistance to breakdown upon application of an electrical field.

Applicant respectfully submits that Casiraghi fails to teach or suggest at least the feature of the metallic conductor means surrounding the fiber for transporting *electrical energy* through the cable. In this regard, Applicant notes that Casiraghi simply teaches an optical fiber cable which is constructed as an optical core 1, an inner sheath 2 made of polymer material, an armour 3 for *reinforcement of tensile stresses*, and an outer sheath 4 made of two layers. *See* Casiraghi at col. 3, lines 10-21 and Fig. 1. Casiraghi teaches that the double layer outer sheath consists of an inner layer without tracking resistance and an outer layer designed to impart high tracking resistance, which is taught as preventing degradation of the sheath due to exposure of electric fields when the cable is mounted in the vicinity of *separate* high voltage lines. *See* Casiraghi at col. 2, lines 36-46 and col. 1, lines 23-54.

Thus, Casiraghi merely provides a fiber optic cable, and does not suggest any metallic conductor means, as claimed, for transporting electrical energy through the cable. Indeed, Casiraghi teaches that the armour simply has the function of reinforcing against tensile stresses, and consists of a glass fiber or polyaramide (e.g., Kevlar), which suggests nothing about transportation of electrical energy. Conversely, the optical fiber cable of claim 1 includes both at least one optical fiber, which conveys optical signals, as well as the claimed metallic conductor means for transporting electrical energy through the cable.

In an exemplary embodiment, the metallic conductor means may transport electrical energy to power repeaters placed at intervals of an optical fiber run, such as in a submarine cable

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application. Thus, the repeaters on the ocean floor could be powered by the metallic conductor means of the cable itself, allowing the optical signal conveyed by the at least one optical fiber to be amplified to maintain acceptable signal levels over long distance runs.

As the armour of Casiraghi merely reinforces against tensile stresses, it does not suggest an electrical conductor means as claimed. Moreover, Casiraghi describes installations in which the optical fiber is placed in the vicinity of separate, high voltage lines, which clearly indicates that the optical cable does not transfer electrical energy itself. Rather, as discussed above, the optical fiber of Casiraghi simply conveys optical signals alone, and provides a dual layer outer sheath to prevent tracking from external electric fields from separate high voltage lines.

Further, Applicant submits that Casiraghi fails to suggest the insulative layer of an insulative composition comprising mainly a mixture of polymers comprising at least one high-density first polymer and one low-density second polymer with a lower viscosity than the first polymer, as claimed. For instance, the Examiner, in addressing the above limitation, simply points to column 4, lines 25-45. *See* Office Action at page 2. However, the Examiner has not identified a low-density polymer having a lower viscosity than the first polymer, but simply points to a list of polymer mixtures without addressing the claimed viscosity of the low-density polymer.

As evidenced by the foregoing, Casiraghi fails to suggest all the features of claim 1. Reconsideration and withdrawal of the rejection is therefore requested. Further, Applicant submits that claims 2-6 and 11-17 are allowable at least by virtue of depending from claim 1 and by virtue of the features recited therein.

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### **Claim Rejections - 35 U.S.C. § 103**

#### Casiraghi in view of Rogestedt

Claims 2, 4 and 5 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Casiraghi in view of Rogestedt (WO 9703124 A1). Applicant traverses and submits that claims 2, 4 and 5 are allowable at least by virtue of their dependency, as noted above.

With respect to claim 2, Applicant further notes that neither Casiraghi nor Rogestedt, whether taken alone or in combination, teaches or suggests the feature of the first polymer has a melt flow rate less than 6g/10 min. Applicant notes that claim 1 defines the first polymer as a high-density polymer, and the second polymer as a low-density polymer having a lower viscosity than the first polymer. As noted above, the Examiner has not identified a mixture of polymers, as claimed, in Casiraghi, which is deficient in this regard.

Further, Rogestedt teaches away from the features of claim 2. For instance, Rogestedt teaches a polymer mixture in which a first high-density polymer has a *lower viscosity* than the low-density polymer, which has a higher viscosity than the first polymer. In this regard, Applicant notes that Rogestedt teaches a multimodal polyolefin mixture comprising a first polymer having a high density (0.930 - 0.975 g/cm<sup>3</sup>) and a high melt flow rate (50 - 2000 g/10 min.) and a second polymer having a low density (0.88 - 0.93 g/cm<sup>3</sup>) and low melt flow rate (0.1 - 0.8 g/10 min.). See Rogestedt at col. 2, lines 8-16. Thus, as the high density polymer has a high melt flow rate, it necessarily has a lower viscosity than the second low density polymer. Rogestedt therefore teaches away from a *high-density* polymer having a *higher viscosity* than

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the second, low density polymer, or the mixture of polymers comprising at least one high-density first polymer and one low-density second polymer which has a lower viscosity than said first polymer, as recited by claim 1. Rogestedt therefore also fails to suggest the feature of claim 2, which recites the first polymer has a melt flow rate less than 6 g/10 min.

Moreover, Applicant notes that page 8 of Rogestedt relied upon by the Examiner likewise teaches a first high density polymer having a high melt flow rate and a second lower density polymer with a lower melt flow rate, which similarly teaches away from a **high-density** polymer having a **higher viscosity** than the second, low density polymer. *See* Rogestedt at page 7, line 30 - page 8, line 10. Accordingly, even assuming the Examiner's asserted motivation to combine is proper, neither Casiraghi nor Rogestedt teaches or suggest all the features of claim 2, and withdrawal of the rejection is therefore requested.

For similar reasons, Applicant submits that neither Casiraghi nor Rogestedt teaches or suggests all the features of claim 4, which recites the proportion of the second polymer is at most 20% by weight of the polymer mixture. As discussed above, Rogestedt teaches away from the mixture of polymers comprising at least one high-density first polymer and one low-density second polymer which has a lower viscosity than said first polymer, as recited by claim 1. Thus, Rogestedt would not suggest the second polymer, which has a **lower** viscosity than the first high-density polymer, at the proportion of at most 20 % by weight of the polymer mixture.  
Reconsideration and withdrawal of the rejection of claim 4 is therefore requested.

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Casiraghi in view of Tuminaro

Claim 11 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Casiraghi in view Tuminaro (U.S. Patent Publication No. 2002/0090183). Without commenting substantively, Applicant submits that claim 11 is allowable at least by virtue of its dependency and by virtue of the features recited therein.

Casiraghi in view of Petisce

Claims 12 and 13 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Casiraghi in view of Petisce (U.S. Patent No. 5,539,849). Without commenting substantively, Applicant submits that claims 12 and 13 are allowable at least by virtue of its dependency and by virtue of the features recited therein.

**New Claims**

In order to provide additional coverage merited by the scope of the present invention, Applicant is adding new claims 14-17. Applicant submits that claims 14-17 are allowable at least by virtue of depending from claim 1 and by virtue of the features recited therein.

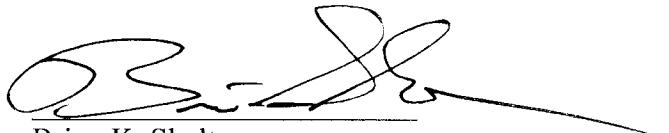
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**Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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